ABSTRACT:

The dielectric composition contains a mixture of a ceramic composition containing $Ba_aRE_bTi_cO_3$, wherein RE represents a rare earth element, with $0.05 \leq a \leq 0.25$, $0.525 \leq b \leq 0.70$, $0.85 \leq c \leq 1.0$, and $2a + 3b + 4c = 6$, and free from lead and bismuth, a glass composition, and a metal oxide. The glass composition preferably contains ZnO or MgO, SiO_2, and at least 10% by weight of Li_2O or TiO_2. Preferably, the alkaline earth metal oxide is MgO. By preference, the glass composition essentially consists of 50-80% weight of SiO_2, 5-25% weight of MgO, and optionally another alkaline earth metal oxide, and 10-25% by weight of Li_2O, and is substantially free from boron. The dielectric composition can be sintered in the presence of Cu electrodes at a temperature below the melting point of Cu so as to manufacture an electronic device such as a ceramic multilayer element. After sintering, the dielectric composition has a relative dielectric constant of at least 55.

Fig. 1